Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Cancel claims 4 and 13-24.

Amend claims 1, 2, 3, 5-11, 25 and 32 and add new claims 34-49 as follows:

1. (Currently Amended) A method of manufacturing a cutting element comprising:

selecting an ultra hard material which is not fully densified;

selecting a substrate at least a portion of which has a density that is less than 100% of full density of said at least a portion;

placing the ultra hard material over the substrate; and

[~~processing~~] sintering the resulting assembly of substrate and ultra-hard material at a sufficient temperature and pressure for full densification and metallurgical joining of the substrate and ultra-hard material, wherein the ultra hard material shrinks during sintering, and wherein the density is selected for [~~controlling the magnitude of the residual stresses generated on the ultra hard material layer during sintering~~] reducing a constraint provided by the substrate on the ultra hard material shrinkage during sintering.

2. (Currently Amended) A method as recited in claim 1 wherein a first portion of the substrate has said density and a second portion of the substrate is fully densified prior to [~~processing~~] sintering.

3. (Currently Amended) A method as recited in claim 2 wherein said substrate first portion extends over the [~~first~~] second portion and wherein the ultra hard material layer is placed over the [~~second~~] first portion.

4. (Canceled)

5. (Currently Amended) A method as recited in claim [[~~2~~]] 1 wherein selecting a substrate comprises selecting a substrate wherein an outer portion of the substrate has a density less than 100% of full density of said outer portion and an inner portion of the substrate is fully densified.

6. (Currently Amended) A method as recited in claim 1 wherein selecting a substrate comprises selecting a substrate wherein a first portion of the substrate has a first density and wherein a second portion of the substrate has a second density, wherein the first density is different from the second density.

7. (Currently Amended) A method as recited in claim 1 wherein selecting a substrate comprises selecting a substrate wherein the entire substrate has a density less than 100% of full density of the substrate.

8. (Currently Amended) A method as recited in claim 1 wherein selecting a substrate comprises selecting a substrate wherein said at least a portion has a density in the range of about 70% to about 90% of full density of said portion.

9. (Currently Amended) A method as recited in claim 1 wherein selecting a substrate comprises selecting a substrate wherein said at least a portion has a density in the range of about 40% to about 99% of full density of said portion.

10. (Currently Amended) A method as recited in claim 9 wherein selecting a substrate comprises selecting a substrate wherein said at least a portion has a density in the range of about 75% to about 99% of full density of said portion.

11. (Currently Amended) A method as recited in claim 1 wherein selecting a substrate comprises selecting a substrate wherein the substrate prior to sintering has a porosity of in the range of about 1% to about 30%.

12. (Original) A method as recited in claim 1 further comprising forming a non-uniform face on the substrate material, wherein the ultra hard material is placed over the non-uniform face.

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Currently Amended) A method of manufacturing a cutting element comprising:

selecting an ultra hard material which is not fully densified;

selecting a substrate having a first portion that has a first density less than 100% of full density, and a second portion that has a second density that is different from the first density;

placing the ultra hard material over the substrate material; and

processing the resulting assembly of substrate and ultra [[-]]hard materials at a sufficient temperature and pressure for full densification and metallurgical joining of the substrate and ultra [[-]] hard material, wherein the ultra hard material shrinks during sintering, and wherein the densities of the two portions are chosen to reduce a constraint to the ultra hard material shrinkage provided by the substrate during sintering.

26. (Original) A method as recited in claim 25 wherein the first density is in the range of about 70% to about 90% of full density.

27. (Original) A method as recited in claim 25 wherein the first density is in the range of about 40% to about 99% of full density.

28. (Original) A method as recited in claim 27. wherein the first density is in the range of about 75% to about 99% of full density.

29. (Original) A method as recited in claim 25 wherein the first density is in the range of about 40% to about 70% of full density.

30. (Original) A method as recited in claim 25 wherein the substrate prior to sintering has a porosity of in the range of about 1% to about 30%.

31. (Original) A method as recited in claim 25 further comprising forming a non-uniform face on the substrate material, wherein the ultra hard material is placed over the non-uniform face.

32. (Amended) A method as recited in claim 25 wherein the second [~~degree of~~] density is 100% of full density.

33. (Original) A method as recited in claim 25 wherein first and second densities are selected for controlling the magnitude of the residual stresses generated on the ultra hard material layer during sintering.

34. (New) A method as recited in claim 1 wherein the density is selected to minimize the constraint provided by the substrate to the ultra hard material shrinkage during sintering.

35. (New) A method as recited in claim 1 wherein the substrate and the ultra hard material shrink during sintering and wherein the density is selected to minimize shrinkage difference between the substrate and the ultra hard material during sintering.

36. (New) A method as recited in claim 1 wherein the ultra hard material comprises diamond.

37. (New) A method as recited in claim 25 wherein the densities are selected to minimize the constraint provided by the substrate to the ultra hard material during sintering.

38. (New) A method as recited in claim 25 wherein the substrate and the ultra hard material shrink during sintering and wherein the densities are selected to minimize shrinkage difference between the substrate and the ultra hard material during sintering.

39. (New) A method as recited in claim 25 wherein the ultra hard material comprises diamond.

40. (New) A method for controlling sintering-induced stresses generated on an ultra hard material layer formed over a substrate comprising:

determining shrinkage of the ultra hard material during sintering;

selecting a substrate having a portion having a density selected for causing said portion to have a shrinkage similar to the determined shrinkage of the ultra hard material;

placing the ultra hard material over the substrate; and

sintering the ultra hard material and substrate forming the ultra hard material layer.

41. (New) A method as recited in claim 40 wherein another portion of the substrate is fully densified prior to sintering.

42. (New) A method as recited in claim 40 wherein selecting a substrate comprises selecting a substrate wherein an outer section of said at least a portion is not fully densified and an inner section of said at least a portion is fully densified.

43. (New) A method as recited in claim 40 wherein_selecting a substrate comprises selecting a substrate wherein a first section of said at least a portion has a first density and wherein a second section of the portion has a second density, wherein the first density is different from the second density.

44. (New) A method as recited in claim 40 wherein selecting a substrate comprises selecting a substrate wherein the entire substrate has a density less than 100% of full density of the substrate.

45. (New) A method as recited in claim 40 wherein selecting a substrate comprises selecting a substrate wherein said at least a portion has a density in the range of about 70% to about 90% of full density of said portion.

46. (New) A method as recited in claim 40 wherein selecting a substrate comprises selecting a substrate wherein said at least a portion has a density in the range of about 40% to about 99% of full density of said portion.

47. (New) A method as recited in claim 46 wherein selecting a substrate comprises selecting a substrate wherein said at least a portion has a density in the range of about 75% to about 99% of full density of said portion.

48. (New) A method as recited in claim 40 wherein selecting a substrate comprises selecting a substrate wherein the substrate prior to sintering has a porosity of in the range of about 1% to about 30%.

49. (New) A method as recited in claim 40 further comprising forming a non-uniform face on the substrate material, wherein the ultra hard material is placed over the non-uniform face.